

[IONIZED PHYSICAL VAPOR DEPOSITION PROCESS AND APPARATUS THEREOF]

Abstract

An ionized physical vapor deposition (I-PVD) process is provided. A plasma reaction chamber is provided. The plasma reaction chamber comprises a metal target and a wafer pedestal set up on the top and bottom section inside the chamber, an ionization unit set up between the target and the wafer pedestal and a conductive mesh set up between the ionization unit and the wafer pedestal. A wafer is put on the wafer pedestal. Thereafter, a negative bias voltage is applied to the metal target and a smaller negative bias voltage is applied to the conductive mesh to deposit a thin film over the wafer. The ionized metallic atoms inside the chamber accelerate towards the conductive mesh but decelerate after passing through the mesh so that step coverage of the deposited thin film is improved without damaging the wafer through ion bombardments.